14.0 Aesthetics, Light And Glare

14.1 Introduction

The following chapter considers whether the proposed project, ISDP, would have an adverse effect upon a scenic vista or scenic Highway, have a demonstrable negative aesthetic effect, or create light or glare. The affected environment is described first, followed by a discussion of the environmental effects of ISDP, and the mitigation measures necessary to alleviate any identified significant adverse impacts. Finally, the chapter contains a comparative evaluation of the effects of the alternatives upon aesthetics, light, and glare.

14.2 Environmental Setting/Affected Environment

This section addresses the existing visual conditions in the south Delta and visual quality issues related to construction and operation of the proposed Interim South Delta Program (ISDP) facilities. Existing visual characteristics of the south Delta, as well as the individual project sites and their surroundings, are discussed. In addition, this section provides a general description of the existing visual character of the State Water Project (SWP) service areas that may be directly or indirectly affected by implementation of the proposed project. Standards used to judge visual sensitivity are presented and relevant local scenic resource information is reviewed in this section.

14.2.1 Delta Region

The Sacramento-San Joaquin Delta spans a vast low-lying flat area at the confluence of the Sacramento and San Joaquin rivers. Lands in the Delta region are frequently characterized as two distinct geographic and visual components: the lowlands, which consist of generally flat lands ranging in elevation from below sea level to about 10 feet above mean sea level (msl); and the uplands, a gently sloping alluvial plain rising from about 10 to 100 feet msl and forming a transition between the Delta lowlands and the inland hills of the Mount Hamilton, Altamont and Diablo ranges. Vistas throughout the Delta region incorporate an assortment of man-made features, but vary substantially between the Delta lowlands and uplands.

As a whole, the Delta presents an image of managed landforms and water bodies, extensively altered from its natural state. Man-made waterways, levees, and other evidence of human activity dominate the landscape, suppressing its original character, particularly within the context of foreground views near water development facilities and agricultural uses. Characteristic features set the man-made channels apart from the natural rivers. Unnatural attributes such as diversion structures, regular, evenly-sloped and riprapped banks, and uniform, often straight courses distinguish many of the dredged waterways. In some instances the contrasts between the man-made and natural channels are less noticeable, caused by differences in line and scale rather than the intrusion of unnatural features. Due to the vegetation growing along their banks, many of the watercourses created during the reclamation process now blend visually with the natural channels of the original rivers. At close range, rural residential and agricultural uses impose

orderly rows and gridlike patterns on the landscape, clearly denoting human influences. However, due to the general lack of buildings and extensive nature of most farms in the region, few artificial sources of light and glare are visible, adding to the rural character of the area. Consequently, man's imprint on the background is less obvious, as distance blends these features with the natural character of the Delta.

Overall, views in the Delta lowlands are fairly homogeneous. The region exhibits little topographic variation. Foreground views consist chiefly of immense areas of relatively flat agricultural land interspersed with levees, canals, and rivers, occasional scattered clusters of trees, and occasional tracts of rural residential and commercial uses. With the exception of scattered trees, vegetation consists mostly of large agricultural expanses with almost indistinguishable differences in form, texture and color. Numerous rivers and canals add complexity to the unvaried nature of the rural viewshed. Wetlands and areas of riparian vegetation are evident along many waterways, and man-made levees furnish most vertical relief within the lowlands. Excepting the large community of Discovery Bay, residential land uses are sparse and generally associated with farm operations. The Delta lowlands' uniform topography renders few features visible in the middle-ground; however, on clear days, the Sierra Nevada and the Mount Hamilton, Altamont and Mount Diablo ranges are noticeable in the eastern and western backgrounds, respectively.

Variations in vegetation, landforms, waterforms, and development patterns create a distinct contrast between the appearance of the upland plain and that of the lowlands. In the upland plain, natural vegetation has been largely replaced or altered by agricultural, residential, and commercial land uses. Typical vegetation apparent in undeveloped areas consists of grasslands, some scattered oaks, and a few riparian areas. Orchards and row crops increase the diversity of the upland landscape. Landforms evident in the Delta uplands and surrounding areas include broad slopes leading up to the rounded hills and ridges of eastern Alameda and Contra Costa counties. These ridgelines dominate background views from much of the region. Upland water forms include rivers and streams, agricultural ponds, and drainage/irrigation canals, but are less frequent than in the lowlands. Larger communities of rural to low-density residential development are associated with the uplands and divide their surroundings.

- *Project Area*

The aesthetic character of the south Delta is similar to that of the Delta as a whole: large flat sunken agricultural islands are bisected by meandering waterways with densely vegetated instream islands. High-voltage transmission lines crisscross the landscape in some areas. The nearby Altamont Hills, merging with the Mount Hamilton Range to the south and the Mount Diablo Range to the north, accent the western background with landmarks such as Mount Diablo and the Altamont Pass windfarms. Visual perceptions of the project area are most easily characterized according to the viewer's location: views from the waterways, and views from the levee areas.

By boat the south Delta can look either man-made, with evenly sloped levees, or lush and green with the dense vegetation of instream islands. Views from the waterways are predominantly short-range, due to the higher elevation of the surrounding levees. Foreground views from the

water are composed of riprapped levees and thickly vegetated islands, a profusion of agricultural pumps, and occasional riverside residences and docks. In some instances, westward views from water-level include the Altamont Hills in the background.

By vehicle the project area appears vast and open, as most roadways are on the levees built to protect the sunken agricultural islands. Agricultural lands are one of the south Delta's most important resources, providing significant amounts of open space, and defining the area's rural character (San Joaquin County 1992c). Foreground views from the levees generally consist of roadside vegetation and cultivated fields. Middle-ground views disappear into the landscape, due to the area's overall flatness. In the background, clusters of planted trees indicate the presence of farmsteads and roadways, and the Altamont Hills are visible from some locations.

Clifton Court Forebay Northern Intake Site. The Clifton Court Forebay northern intake site is located at the northeast corner of Clifton Court Forebay, surrounded by a variety of land uses, including the forebay, waterways, agricultural uses and residential areas. Consequently, views of the Clifton Court Forebay intake site and surrounding area are composed of the same elements as much of the south Delta: waterways, levees, and islands. Visual features specific to the proposed intake site include riprapped levees on both sides of West Canal, a small densely vegetated island directly east of the project site, and Kings Island, a horseshoe-shaped residential island partly screened by mature vegetation. Northeast of the site, the south end of Victoria Island is bounded by a levee, partly obscured by tules growing along the edge of Old River. The project site itself, visible from surrounding levees, currently supports some vegetation between the levees separating West Canal and Clifton Court Forebay, but little vegetation elsewhere.

Old River Dredging Site. The Old River dredging site encompasses Old River between North Victoria Canal and the north end of Coney Island. Views in this area are characteristic of those described above for the south Delta; however, some visual characteristics are unique to the Old River dredging site. As indicated in Section 12.0, Land Use and Planning, the site is surrounded by a variety of land uses, including large agricultural parcels and numerous residences. Riprapped levees line both sides of Old River, with extensive areas of tules along both edges of the waterway. Several farmsteads abut the river and the levee at various points along the project reach. Highway 4, a locally-designated scenic Highway, crosses the river between Victoria Island and Byron Tract.

The Old River dredging project also includes the siting and use of two settling ponds on the western portion of Victoria Island. One pond would be located on agricultural land immediately north of Highway 4; the second would be farther south, away from the roadway. These areas, particularly the northern settling pond, are highly visible from Highway 4.

An alternative location for the settling ponds is on Byron Tract. This includes a 200 acre pond immediately south of Highway 4, and a 160 acre pond north of Clifton Court Road at Byron Highway. These ponds are highly visible from Highway 4 and Byron Highway, respectively.

A third alternative for the disposal of the dredged material is on the levees around the perimeter of Twitchell Island. This disposal location is well away from the nearest well-traveled

roadways, Highway 12 and 160. The use of the material for levee enhancement around Twitchell Island would be visible to local residents and travelers on local roads.

Old River Fish Control Structure Site. The Old River fish control structure site is located at the confluence of Old River and the San Joaquin River. The visual character of this area is similar to that of the south Delta as a whole, but with much less vegetation and topographic variety. Riprapped levees flank both Old River and the San Joaquin River excluding a small area on the eastern bank of the confluence. Levees adjacent to the site are quite tall, effectively creating a wall between the rivers and views of surrounding areas. A few large trees and shrubs grow on the eastern side of the river confluence, where the bank slopes more gently toward the water. The remainder of the area has little vegetation. Views in the area immediately surrounding the site are characterized almost exclusively by agricultural uses. Although several nearby farmsteads and other residences are visible from the levees, none are near enough the project site to be discernible from the waterways.

Middle River Tide Barrier Site. The Middle River tide barrier site is located in Middle River near the confluence with Victoria Canal, North Canal, and Trapper Slough. Views of the site and surrounding area are composed of the same elements as much of the south Delta. The Middle River tide barrier site is surrounded by riprapped levees on both banks, although vegetation has covered much of the northern levee. Singular visual features include several densely vegetated small islands to the east and west of the site within Middle River. A farmstead abuts the landward side of the levee immediately southwest of the project site, with an agricultural pump extending into the river nearby. An existing rock barrier is partly submerged within the river during portions of April, May, October and November.

Grant Line Canal Barrier Site. The Grant Line Canal barrier site is located at the confluence of Grant Line Canal and Old River, in an area characteristic of the south Delta. Site-specific visual features include the large berm which separates Grant Line Canal from Fabian and Bell Canal, supports some residential use, and is thickly covered in vegetation. Several farmsteads and residences are situated north of the project site on Union Island, and west near Clifton Court Forebay. Two smaller islands immediately west of the site contain two uninhabited houses. Little vegetation, beyond grasses and scattered shrubs, covers the northern levee of Grant Line Canal. However, the banks of Fabian and Bell Canal support abundant vegetation. High-voltage power lines cross the canal west of the site, with a steel lattice transmission tower on the north bank near the proposed barrier site. Levees line the south side of Fabian and Bell Canal, and the north side of Grant Line Canal.

Old River Flow Control Structure Site. Old River southeast of the convergence of the Alameda, Contra Costa, and San Joaquin county lines. Visual characteristics of this site are typical of the south Delta, and closely resemble those of the nearby Grant Line Canal barrier site. A boat ramp extends from a small structure atop the northern levee to a seasonal rock barrier which is partly submerged within Old River at the project site. West of the project site, a large number of residences line the southern edge of Old River and cover several small islands.

14.2.2 State Water Project Facilities

Implementation of the ISDP has the potential to affect several SWP facilities throughout the state, particularly the reservoirs initially created to facilitate SWP water distribution. Construction of the SWP dams resulted in a substantial alteration of the visual character of the valleys in which the reservoirs are located, replacing the visual amenities provided by streams. Generally, reservoir construction increased visual variety, and large water bodies are widely perceived as features of high visual interest. In addition, the reservoirs became major recreation facilities, thereby creating considerable new view opportunities for recreationists. SWP facilities at which visual resources could be affected by ISDP implementation include Lake Oroville, San Luis Reservoir and O'Neill Forebay, Castaic Lake, Pyramid Lake, Silverwood Lake, and Lake Perris.

14.2.3 Visual Sensitivity

Certain uses are considered more sensitive to visual change than others. Receptors considered most sensitive to visual change include scenic roadways and view corridors, local residences and recreational uses, as listed in the following.

Clifton Court Forebay Intake Site. Sensitive visual receptors in the vicinity of the Clifton Court Forebay intake site include residents of Kings Island, boaters on West Canal and Old River, and recreationists using West Canal, Old River, and the levees surrounding Clifton Court Forebay.

Old River Dredging Site. Residents along Old River and Kings Island, travelers using Highway 4, and recreationists along Old River and adjacent waterways comprise the sensitive visual receptors surrounding the Old River dredging site.

Old River Fish Control Structure Site. Sensitive visual receptors in the vicinity of the Old River fish control structure site consist primarily of recreationists on Old River and the San Joaquin River.

Middle River Tide Barrier Site. Sensitive visual receptors in the area surrounding the Middle River tide barrier site include nearby residents, travelers on Highway 4, and recreationists using area waterways.

Grant Line Canal Barrier Site. Nearby residents and recreationists along Grant Line Canal, Fabian and Bell Canal, and Old River are considered sensitive to any change occurring at the Grant Line Canal barrier site.

Old River Flow Control Structure Site. Sensitive visual receptors near the Old River flow control structure site consist of the inhabitants of neighboring homes, and recreationists on Grant Line Canal and Old River.

Receptors considered sensitive to visual change are also generally considered sensitive to locally increased amounts of light and glare. Much of the project area is presently in agricultural use and therefore includes few sources of artificial illumination. In addition to sources such as nearby water surfaces, glare can be caused by reflections from paved surfaces, vehicles, and reflective building materials. Consequently, all of the receptors identified above would likely be sensitive to any increases in light and glare as well as to visual change.

14.2.4 Scenic Routes

The Delta region is host to several State- and County-designated scenic routes, some of which are located in or near the project area. Due to the expansive nature of Delta vistas, the view corridors (area visible from the road) of these scenic routes may include some of the proposed project sites. Alameda, Contra Costa and San Joaquin counties have all adopted a variety of policies and programs related to scenic routes and corridors.

Alameda County contains one State-eligible scenic Highway in the project area, Interstate-580 (I-580). I-580 runs northwest-southeast through northeastern Alameda County and western San Joaquin County approximately five miles south of Clifton Court Forebay, affording travelers panoramic views of the area. I-580 was determined to be eligible for official scenic Highway designation and included in *The Master Plan of State Highways Eligible for Official Scenic Highway Designation* by legislative act (Alameda County 1994a). Alameda County has adopted policies regarding the regulation of land use and density, detailed land and site planning, control of outdoor advertising, control of earthmoving and landscaping, and the design and appearance of structures and equipment within the scenic corridor of I-580, to protect the scenic quality of this route (Alameda County 1994a).

The *Contra Costa County General Plan Transportation Element* contains a *Scenic Routes Plan*, intended to add considerations of roadway corridor appearances and aesthetics to the scope of the General Plan. The Scenic Routes Plan identifies a countywide scenic route system of roadways which form the countywide *Scenic Routes Plan*; projects proposed near these roadways are subject to County review for compatibility with the scenic qualities of these roads (Contra Costa County 1991). Highway 4, which crosses the Old River dredging site and continues past the Middle River tide barrier site, is a County-designated scenic Highway. Contra Costa County also designates the Byron Highway as a scenic route. This roadway passes within a mile of the Old River flow control structure site.

San Joaquin County has two State-designated scenic Highways: all of Interstate-580 through the county and a portion of I-5 (San Joaquin County 1992c). Both of these Highways traverse portions of the project area without approaching the project sites. Although no other roadways in San Joaquin County merit acceptance into the state's *Master Plan for Scenic Highways*, the County has determined that many other local roads provide interesting recreational drives. These routes are considered to have attractive natural amenities, interesting man-made features, or activities representative of the county, and are therefore designated as scenic (San Joaquin County 1992c).

14.2.5 Applicable Plans And Policies

Local aesthetics goals, objectives and policies applicable to the proposed alternatives center primarily on three visual quality issues: scenic routes; utility corridors; and scenic waterways. Alameda, Contra Costa and San Joaquin counties emphasize the preservation and enhancement of visual resources along scenic transportation corridors, and a variety of designated scenic areas. In addition, all three project area counties have policies addressing the siting of utility lines for minimal visual impact. Finally, both Contra Costa and San Joaquin counties emphasize the protection of waterways for scenic value.

Discussions of scenic resources and scenic Highway classifications for the project vicinity appear in the *East County Area Plan* portion of the *Alameda County General Plan,* and in the Contra Costa and San Joaquin County general plans. ISDP was evaluated in relation to the pertinent goals from each of these documents.

14.3 Environmental Impacts/Consequences

14.3.1 Methods

Visual impacts are generally subjective, as sensitivity to change in the visual environment varies and individuals respond differently to these changes. Consequently, this analysis can only address the visual impacts of the proposed alternatives on a qualitative level, based on the textual and graphic descriptions provided. However, despite individual predispositions, certain concepts are fundamental to any consideration of visual change, as follows: 1) for a visual change to be perceived a "norm" must first be established; 2) viewers tend to group objects by proximity or similarity; 3) an area perceived as a figure contrasts more with its surroundings than one regarded as background; 4) perceived size of an object is a function of visual angle - the lower the viewer relative to the object, the larger the object appears; and 5) light or bright objects appear to advance; dark ones recede.

Similarly, an evaluation of light and glare takes into account the following general rules: the amount of light reflected from an object is determined by the surface reflectance and the illumination falling on the object; and the location or orientation of a surface will affect the intensity of illumination falling on it.

Using the principles outlined above, potential visual impacts of the alternatives on sensitive receptors identified above have been assessed relative to the preservation of views and the creation of possibly intrusive light and glare. Impacts of the project on visual quality were also determined by analyzing the relationship between the general visual attributes of the proposed alternatives and the characteristics of existing land uses in the area. The analysis distinguishes between effects on land-and waterway-based sensitive receptors, and assumes that views are reciprocal; that is, areas visible from proposed project sites have views of those sites.

14.3.2 Significance Criteria

In accordance with the CEQA Guidelines and for the purposes of this analysis, impacts are considered significant if implementation of any of the proposed alternatives would: 1) cause a substantial, demonstrable negative aesthetic effect; 2) compromise the preservation of views and sunlight; 3) alter the existing character of the site; or 4) produce light and glare which may disturb activities in adjacent areas.

Additional standards by which the significance of visual impacts is judged include the compliance of the proposed alternatives with applicable goals, policies and programs contained in local planning documents.

On a State and local level, the Delta Protection Act of 1992 (Act), incorporated into Section 21080.22 and Division 19.5 of the California Public Resources Code, is intended to facilitate the preservation and protection of Delta resources for the use and enjoyment of current and future generations. In support of that purpose, the Act includes a series of findings and declarations pertaining to the quality of the Delta environment. These findings emphasize the national, state and local importance of protecting the Delta's resources, including open space, and indicate that protection of these resources will best be achieved through implementation of land use planning and management by local governments, in compliance with a comprehensive, long-term resource management plan under the Act.

At the Federal level, the Council on Environmental Quality (CEQ) NEPA Regulations guide the preparation of environmental impact statements. In accordance with the CEQ NEPA Regulations, determinations of significance in this impact analysis take the following considerations into account: 1) direct effects of the proposed action and alternatives; indirect effects of the proposed action and alternatives; and possible conflicts between the proposed action and the objectives of federal, regional, State, and local land use plans, policies and controls for the area concerned.

In addition, the Federal 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material were considered in the evaluation of aesthetics impacts. The 404(b)(1) Guidelines find that the aesthetics of aquatic ecosystems relate to the quality of life enjoyed by the general public and property owners. Under the 404(b)(1) Guidelines, dredged or fill material discharge into aquatic environments are considered potentially detrimental to aesthetic resources if they: 1) mar the beauty of natural aquatic ecosystems by degrading water quality, creating distracting disposal sites, inducing inappropriate development, encouraging unplanned and incompatible human access, and by destroying vital elements that contribute to the compositional harmony or unity, visual distinctiveness, or diversity of an area; 2) adversely affect the particular features, traits, or characteristics of an aquatic area which make it valuable to property owners; or 3) degrade water quality, disrupt natural substrate and vegetational characteristics, deny access to or visibility of the resource, or result in changes in odor, air quality, or noise levels, thereby potentially reducing the value of an aquatic area to private property owners.

14.3.3 ISDP Project-Related Impacts

The review of the potential impacts of ISDP upon aesthetics, light, and glare concluded that the following were potential concerns: 1) the ISDP facilities could obstruct existing views in the project area; 2) the facilities could alter the existing visual character of portions of the project area, affecting local scenic quality; 3) the facilities could introduce new sources of light and glare into the project area; 4) the facilities could conflict with applicable goals, policies or programs related to aesthetics; and 5) the facilities could temporarily alter the visual character of various State Water Project facilities. Each of these potential concerns is discussed, by facility, in the following.

- *Clifton Court Forebay Northern Intake Site*

Existing Views. The site is most prominent from adjacent areas of West Canal, and comprises a very small element of the landscape for other sensitive receptors. West Canal's narrowness and the height of the existing forebay levees confine westward views to the levee and sky. Since no views exist for the structure to block, this is considered a less-than-significant adverse impact.

Local Scenic Character. The proposed northern intake would be visible in varying degrees to recreationists on Old River, West Canal and the forebay levees, and to residents of Kings Island. The current visual character of the intake site represents a substantial modification of its natural state, and consists of a riprapped levee supporting some vegetation. In addition, the site comprises a relatively small portion of the viewshed for surrounding sensitive receptors. Although the proposed intake facilities and any associated utility lines would occupy more vertical space and further modify the site's appearance, the structures would not substantially alter the scenic quality of the area as seen from those sensitive receptors. This is considered a less-than-significant adverse impact.

New Sources of Light and Glare. The proposed intake would replace an existing levee segment with unfinished concrete and painted steel, slightly increasing the amount of glare in the immediate vicinity. Navigation lights associated with the structure would bring artificial illumination to this rural area. Despite the site's proximity to Kings Island residents and boaters on adjacent waterways, any intake-related light and glare is not expected to affect those sensitive receptors. The site is not directly visible from Kings Island, the glare would not differ substantially from that already present in the area, and the navigation lights are necessary to boating safety. Consequently, this is considered a less-than-significant adverse impact.

Goals, Policies, or Programs. The County of Contra Costa's aesthetics, light, and glare-oriented goals and policies generally encourage the maintenance of open space and the preservation of scenic views. The Clifton Court Forebay and Old River are designated as scenic waterways within the County's General Plan. The compatibility between the proposed intake facility and the adjacent existing SWP facilities leads us to conclude that the construction and operation of the new intake would not conflict with the County's goals and policies. This is a less-than-significant adverse impact.

- *Old River Dredging Site*

Existing Views. The dredging process itself is unlikely to visually intrude on the Old River area, but construction of settling ponds with four-foot dikes on Victoria Island could affect the landscape's accessibility to nearby residents and travelers on scenic Highway 4. The nearest residence to the proposed ponds is roughly 500 feet northwest of the southern pond, at a slightly higher elevation. Based on its distance and visual angle from the house, a four-foot dike would not impede existing views from that sensitive receptor. The western half of Victoria Island ranges from five to 12 feet below mean sea level. Highway 4 traverses the island at a substantially higher elevation. Although the settling ponds would be surrounded by four-foot-high dikes, the elevation difference between Highway 4 and the ponds would preclude obstruction of any existing vistas. This is considered a less-than-significant adverse impact.

The alternative settling ponds on Byron Tract would not obstruct existing vistas from Highway 4 or Byron Highway owing to the elevation difference between the roads and the ponds. The possible use of the materials for levee enhancement at Twitchell Island would also not obstruct existing vistas. These are considered less-than-significant adverse impacts.

Local Scenic Character. The settling ponds on Victoria Island or Byron Tract would displace the agricultural features that presently typify the sites; however, the ponds are expected to resemble uncultivated agricultural areas, thereby remaining in character with the surrounding fields. In addition, travelers on Highway 4 and Byron Highway would see the ponds from above. Downward views tend to diminish the perceived scale of objects, thereby minimizing any perceptible change. Consequently, the ponds would not substantially alter the area's visual integrity. The use of the material for levee enhancement on Twitchell Island would not be viewed as out of place, considering the levees of this and other delta islands are frequently maintained in this way. These are considered a less-than-significant adverse impacts.

New Sources of Light and Glare. The dredging of Old River would not bring any permanent sources of light or glare into the reach of Old River between North Victoria Canal and Coney Island, nor to the proposed settling ponds on Victoria Island and Byron Tract, and the levee disposal area on Twitchell Island. Dredging is anticipated to occur primarily during daylight hours; some nighttime operation is possible. Consequently, lights on the dredge may temporarily introduce a small amount of illumination to the Old River channel, possibly disrupting nearby boaters and residents. No additional light or glare, either temporary or permanent, is likely to accompany the placement of dredged materials within the settling ponds. However, due to the probability of nighttime dredging and lighting, this adverse impact is considered potentially significant.

Goals, Policies, or Programs. The proposed dredging of Old River would neither further these goals and policies, nor conflict with them. This is considered an area of no impact.

- *Old River Fish Control Structure Site*

Existing Views. Although the area surrounding the Old River fish control structure site is sparsely populated, with few travelers on its roadways, this area is one of the most popular boating locations in the south Delta. Due to the large number of viewers that would be affected, this is considered a significant and unavoidable adverse impact.

Local Scenic Character. This segment of the Old River channel has already been greatly modified from its natural state, and is currently characterized by tall riprapped levees and little vegetation. Consequently, although the area attracts many boaters, its degraded visual quality would likely absorb additional man-made elements, rendering this a less-than-significant adverse impact.

New Sources of Light and Glare. The additional illumination from navigation lights and increased glare from construction materials would not substantially affect conditions on the waterways; furthermore, as a limited number of sensitive receptors surround the site, the light and glare would not disturb activities in adjacent land areas. This is considered a less-than-significant adverse impact.

Goals, Policies, or Programs. The proposed flow control structure would not further these goals and policies of the County of San Joaquin, but also would not substantially conflict with them. The scale of the facility is small enough that any conflict with the goals and policies is considered a less-than-significant adverse impact.

- *Middle River Tide Flow Control Structure Site*

Existing Views. Few boaters use Middle River due to shallow water and snags, and surrounding levees restrict visual access to the site by nearby residents and travelers on scenic Highway 4. Due to the distance and dense vegetation between the barrier site and northern sensitive receptors, neither the proposed storage area nor the barrier itself is likely to be seen by residents to the north or travelers on Highway 4. A farmstead adjoins the landward side of the southern levee; northward views from this locale are restricted by existing trees and the height and proximity of the levee. As the facility would have limited effects on few viewers, this is considered a less-than-significant adverse impact.

Local Scenic Character. As the visual changes associated with this facility would affect very few viewers, this is considered a less-than-significant adverse impact.

New Sources of Light and Glare. Due to the area's infrequent use and limited exposure to sensitive receptors, this intensification of light and glare is unlikely to have a substantial negative effect. Consequently, this is considered a less-than-significant adverse impact.

Goals, Policies, or Programs. The scale of the facility is small enough that any conflict with the goals and policies is considered a less-than-significant adverse impact.

- *Grant Line Canal Barrier Site*

Existing Views. Although the site is far from scenic routes, several homes are located nearby and the canal is a popular boating and fishing area. Due to the high number of sensitive receptors in the site vicinity, this is considered a significant and unavoidable adverse impact.

Local Scenic Character. The area's existing mixture of man-made and natural visual attributes comfortably accommodates some degree of change. However, the presence of several nearby residences and Grant Line Canal's reputation as a popular recreation spot contribute to a high degree of visual sensitivity. The exposure of this large number of sensitive receptors to such a large-scale visual change is considered a significant adverse impact.

New Sources of Light and Glare. Although several residences are located near the site, the presence of substantial vegetation buffers most sensitive receptors, and would limit the amount of light and glare evident. This is considered a less-than-significant adverse impact.

Goals, Policies, or Programs. The scale of the proposed structure is large enough that a substantial conflict would exist in considering the County goal to protect scenic corridors from unsightly development. This is considered a significant adverse impact.

- *Old River Flow Control Structure Site*

Existing Views. The Old River flow control structure's 15-foot-high radial gates would eliminate long-distance water-level vistas from Grant Line Canal and Old River, and restrict views from neighboring homes. When raised, the radial gates would further reduce the area visible from the waterways and adjacent homes. The proposed levee-top control building, the microwave tower, and the flashboard storage area would also contribute to the obstruction of existing visual features in the site vicinity. Due to the large number of sensitive receptors affected, this is considered a significant and unavoidable adverse impact.

Local Scenic Character. Breaching of the northern levee, expansion of the channel, and construction of a new levee farther north would substantially alter the character of the project site. The existing temporary barrier projects slightly above the water, blending with the adjacent levees and comprising a minor element of the landscape. However, the concrete control structure, equipped with three 20-foot-wide by 15-foot-high radial gates and a 50- by 105-foot boat lock, would dominate the viewshed from Old River; when raised, these gates would also affect the landscape seen from nearby residences and the proposed new development. Finally, the levee-top control building, microwave tower, storage areas, utility lines, and placement of 5,600 square feet of riprap would be conspicuous and appear out of character from most surrounding areas. Due to the large number of sensitive receptors whose views would be changed, this is considered a significant adverse impact.

New Sources of Light and Glare. The barrier, and therefore its associated glare and illumination, would likely be visible to numerous sensitive receptors such as nearby residents to the south and west. Due to the proximity of other sources of light and glare, such as existing residential,

commercial, and water management uses, and the vegetation screening most nearby sensitive receptors, little project light or glare is likely to affect areas to the south and west. Therefore, this is considered a less-than-significant adverse impact.

Goals, Policies, or Programs. The scale of the proposed structure is large enough that a substantial conflict would exist in considering the County goal to protect scenic corridors from unsightly development. This is considered a significant adverse impact.

- *Increase Diversions Into Clifton Court Forebay*

Visual Character of the State Water Project. The implementation of ISDP is expected to affect the duration of water level fluctuations within the SWP reservoirs. Although the reservoir levels are not expected to rise above maximum capacity, nor drop below minimum pool, the water could remain at high or low levels for longer or shorter periods than usual. Water level fluctuations are an accepted feature of reservoirs. Accordingly, this would constitute a minimal aesthetic change, and is considered a less-than-significant adverse impact.

14.4 Mitigation Measures

14.4.1 Old River Dredging Site

In the event that nighttime dredging is necessary, any running lights on the dredge should be directed downward and limited in intensity, but should not be operated in a manner unsafe for navigation. Low-intensity shaded lighting, if used sparingly and directed away from adjacent uses, would provide adequate visibility for safety and security purposes. This type of lighting would minimize the increase in night illumination in the Old River area.

14.4.2 Old River Fish Control Structure Site

The proposed structure would block existing views from Old River and, to a lesser degree, the San Joaquin River and nearby roads, affecting a large number of viewers. This is considered a significant and unavoidable impact. There are two possible approaches dealing with this impact. The first would be the relinquishment of this portion of ISDP. The second would be the construction of a smaller, less intrusive facility on Old River. Implementation of either of these methods would constitute a substantial change to, rather than mitigation of, the proposed project. As this impact cannot be mitigated without implementing an alternative project, it remains significant and unavoidable for purposes of this EIR/EIS.

14.4.3 Grant Line Canal Barrier Site

The proposed flow control structure would obscure the existing views of much of the canal and nearby areas from both water-level and land-based sensitive receptors. The barrier would eliminate long-distance water-level views on Grant Line Canal. A large number of viewers would be affected. Both of these adverse effects conflict with the goals and policies of the

County of San Joaquin. These are considered significant and unavoidable impacts of ISDP. There are two ways to deal with this impact. The first would be the relinquishment of this portion of the ISDP. The second would be the construction of a smaller, less intrusive facility on Grant Line Canal. Implementation of either of these methods would constitute a substantial change to, rather than mitigation of, the proposed project. As this impact cannot be mitigated without implementing an alternative project, it remains significant and unavoidable for purposes of this EIR/EIS.

The scale of the facility would adversely impact the local scenic character. This impact would also constitute a substantial conflict with the goals and policies of the County of San Joaquin. The placement of the screening vegetation in the areas surrounding the proposed Grant Line Canal barrier would not completely obscure the views of the proposed facilities, but would reduce these impacts to a level of insignificance.

14.4.4 Old River Flow Control Structure Site

The proposed structure would eliminate long-distance existing water-level views from Grant Line Canal and Old River, and restrict views from neighboring homes. A large number of sensitive receptors would be affected. This would create a substantial conflict with the goals and policies of the County of San Joaquin. These are significant and unavoidable impacts of the proposed project. There are two possible ways to deal with this impact. The first would be the relinquishment of this portion of ISDP. The second would be the construction of a smaller, less intrusive facility in this location. The implementation of either of these methods would constitute a substantial change to, rather than mitigation of, the proposed project. As this impact cannot be mitigated without implementing an alternative project, it remains significant and unavoidable for purposes of this EIR/EIS.

The proposed Old River flow control structure and appurtenant facilities would introduce new visual elements to numerous sensitive receptors and substantially alter the character of the project site. This would conflict with the goals and policies of the County of San Joaquin. These impacts are considered significant and adverse. The placement of screening vegetation in the areas surrounding the proposed Old River flow control structure would not completely obscure views of the project facilities, but would substantially reduce the visibility of the structure from surrounding sensitive receptors and reduce the impacts to a level of insignificance.

14.5 Comparative Evaluation Of The Alternatives

14.5.1 Enlargement Of Clifton Court Forebay, Construction Of Two Intake Structures, Increased Export Capability, And Construction Of Permanent Barriers

This alternative would include several of the components that are associated with the proposed project, ISDP. These are the construction and operation of the Old River fish control structure, Middle River tide barrier, Grant Line Canal barrier, and Old River flow control structure. The intake proposed for ISDP would not be constructed. Instead, this alternative would include an

enlargement of the Clifton Court Forebay and the construction of two intake facilities on the enlarged forebay.

Accordingly, this alternative would include all of the impacts associated with ISDP, except those created by the construction and operation of the northern intake facility. In addition, this alternative would include impacts associated with the expanded forebay and the construction of two new intake facilities, as described in the following.

- *Enlargement Of Clifton Court Forebay*

Existing Views. The proposed enlargement would increase Clifton Court Forebay's surface area by approximately 2,900 acres, through the inundation of agricultural areas. The submerging of extensive tracts of agricultural land and the associated construction of dam embankments around the forebay would eliminate existing views of large rural areas. In addition, the placement of an embankment along Highway 4 would likely restrict visual access to the Old and Middle River bridges, both of which are registered National Historic Landmarks. This is considered a significant and unavoidable adverse impact.

Local Scenic Character. The proposed enlargement would increase Clifton Court Forebay's surface area by approximately 2,900 acres, submerging existing agricultural areas. This new forebay area would be visible to adjacent sensitive receptors such as Discovery Bay residents and travelers on Highway 4. Although the inundation of extensive tracts of agricultural land would alter the existing visual character of those areas, the process would not necessarily affect scenic quality. Like the existing agricultural views, water bodies are generally considered visually desirable and aesthetically pleasing. Consequently, this is considered a less-than-significant adverse impact.

New Sources of Light and Glare. Expansion of Clifton Court Forebay by approximately 2,900 acres would substantially enlarge the water surface area which could reflect light and increase glare in the site vicinity. As the levees proposed to contain this expanded forebay would be at a higher elevation than adjacent roadways, reflections from the water would be unlikely to affect travelers on Highway 4 or other nearby roads. Some additional glare could be perceived from upper-story windows of adjacent residences in the southeast corner of Discovery Bay; however, disturbance is expected to be minimal. Consequently, this is considered a less-than-significant adverse impact.

- *North Victoria Canal/Middle River And North Victoria Canal/Old River Intake Sites*

Existing Views. The proposed intakes would replace existing levee segments on the northwest and northeast corners of Victoria Island, respectively. The intake gates would rise to approximately 29 feet above the levee, when open. However, the height of the existing levees and the narrowness of the adjacent waterways already restricts long-distance views. Consequently, the proposed intake structures are not expected to further reduce visual access to surrounding areas. This is considered a less-than-significant adverse impact.

Local Scenic Character. The proposed intakes would replace existing levee segments on the northwest and northeast corners of Victoria Island, respectively. The intake would primarily be visible to recreationists on adjacent reaches of Middle River, Old River and North Victoria Canal. The intake gates, when open, would stand roughly 29 feet above the levee. The levee's present visual character represents a substantial modification of its natural state. Although the proposed intake facilities would occupy more vertical space and further modify the area's appearance, the structures would not substantially alter the scenic quality seen from nearby sensitive receptors. This is considered a less-than-significant adverse impact.

New Sources of Light and Glare. The proposed intakes would replace existing levee segments with unfinished concrete and painted steel, slightly increasing the amount of glare in the immediate vicinity of each site. Navigation lights, necessary to boating safety, would introduce artificial illumination into this rural area. As the sensitive receptors in this area are limited primarily to boaters, the glare would not vary considerably from existing conditions, and the navigation lights are necessary to boating safety, this is considered a less-than-significant adverse impact.

Goals, Policies, and Programs. This alternative would involve changes to existing visual characteristics in the project area, but would support most of the relevant aesthetics policies in local planning documents. Effects of this alternative associated with construction and operation of waterway barriers are discussed above under the ISDP analysis. The expansion of Clifton Court Forebay and construction of associated intake and conveyance facilities could conflict with local policies related to the conservation of visual resources in designated scenic areas. However, as the enlarged forebay would replace one scenic attribute (farmland) with another visual feature generally considered positive (water), this is considered a less-than-significant adverse impact.

Visual Character of the State Water Project. The perceived visual quality of water bodies is closely tied to water level fluctuations. In general, higher water levels are often seen as aesthetically pleasing, while lower levels are considered less attractive. Within the space of any given year, wide fluctuations in lake levels are common occurrences at reservoirs throughout California, and are generally accepted as "normal" by recreationists and visitors.

Under this alternative the water surface elevation of SWP reservoirs could vary slightly from historic conditions. However, as described above, such changes are typical of reservoirs. Therefore, for aesthetic purposes, this is considered a less-than-significant adverse impact.

14.5.2 Reduction Of CVP/SWP Exports And Management Or Reduction Of Demand For SWP Water

This is a non-structural alternative which would differ substantially from ISDP in not including the construction and operation of new facilities in the Delta, and not including the dredging of Old River. None of the environmental effects of ISDP would occur if this alternative were implemented. Accordingly, existing views and local scenic character would not be altered, no new sources of light and glare would be created, and no conflicts with goals, policies, and programs would occur. However, the visual character of the State Water Project would be

affected, however. This alternative could result in reduced water supplies to SWP reservoirs and changes in the water level fluctuation patterns at those reservoirs. As water level fluctuations are an accepted feature of reservoirs, this reduction would not be considered to substantially change the visual quality of those areas. Therefore, this is considered a less-than-significant adverse impact.

14.5.3 Modification Of CVP/SWP Exports, Consolidation Of Agricultural Diversions, Extension Of Existing Agricultural Diversions, And Increased Pumping At Harvey O. Banks Up To 10,300 cfs.

This alternative would include the ISDP actions involving the dredging of 4.9 miles of Old River and the construction and operation of a new intake facility at Clifton Court Forebay. However, under this alternative, the construction and operation of the ISDP flow and fish barriers would not occur. Instead, the alternative would include the consolidation and extension of agricultural diversions and additional dredging of Paradise Cut, Middle River, and Old River could be expected. The following is a discussion of impacts expected to occur with the construction and operation of the consolidated agricultural diversions.

Existing Views. Most elements of this alternative do not involve physical changes to the south Delta environment, and therefore would have no aesthetic effects. The dredging itself would not significantly obstruct views. However, consolidation of agricultural diversions and the construction and operation of regulating reservoirs could affect the visual environment. In particular, the reservoirs could block views from adjacent areas. As obstructed scenes are likely to be limited to properties served by the reservoirs, this is considered a less-than-significant adverse impact.

Local Scenic Character. Most elements of this alternative do not involve physical changes to the south Delta environment, and therefore would have no aesthetic effects. Dredging is not expected to affect the area's visual quality. However, consolidation of agricultural diversions and the construction and operation of regulating reservoirs could have noticeable effects on the visual environment. As many rural residences in the Delta are located in close proximity to levees, where the reservoirs would be situated, this is considered a significant adverse impact.

New Sources of Light and Glare. Most elements of this alternative do not involve physical changes to the south Delta environment, and therefore would not affect light or glare. Dredging-related light and glare would only be associated with any nighttime operations, which could introduce some illumination into the immediate vicinity. As many roadways and rural residences in the Delta are located on or adjacent to levees, this is considered a significant adverse impact.

Goals, Policies, and Programs. Most elements of this alternative would not involve physical changes to the south Delta environment, and therefore would not affect the alternative's compliance with local planning documents. Consolidation of agricultural diversions and the construction and operation of regulating reservoirs would constitute a physical change in these areas. However, as these facilities would complement the surrounding agricultural uses, their

presence is unlikely to directly conflict with any aesthetics goals or policies of local planning documents. Consequently, this is considered a less-than-significant adverse impact.

14.5.4 ISDP Project With An Additional Clifton Court Forebay Intake At Italian Slough

This alternative would include all of the facilities and environmental effects associated with ISDP, plus the effects of the construction and operation of a second intake facility at Italian Slough, which is discussed in the following.

- *Italian Slough Intake Site*

Existing Views. The proposed intake facility would be built within the existing viewshed of nearby recreationists on Italian Slough and the forebay levees. The proposed intake facility would replace an existing segment of the Clifton Court Forebay levee, and would extend slightly above the levee. Views from Italian Slough are presently constrained by the width of the waterway and the height of the adjoining levees. Consequently, the proposed intake structure, while somewhat taller than the existing levee, is not expected to substantially obscure the surrounding landscape beyond current conditions. This is considered a less-than-significant adverse impact.

Local Scenic Character. Construction of the proposed intake facility would occur within the existing viewshed of nearby recreationists on Italian Slough and the forebay levees. The proposed intake facility would replace an existing segment of riprapped levee with another obviously man-made concrete structure. Although the raised gates of the intake would alter the levee's continuous horizontal line, the site's visual character is not likely to change substantially from its present engineered appearance. This is considered a less-than-significant adverse impact.

New Sources of Light and Glare. Construction and operation of the proposed Italian Slough intake would increase the amount of glare and night lighting in the immediate site vicinity. The concrete and steel intake structure would replace an existing levee segment with slightly more reflective materials. In addition, security and navigation lights located on and around the facility would increase the amount of light in this rural, unlit area. Navigation lights are necessary to boaters on the slough to ensure safety near the intake, and would not be considered offensive to those sensitive receptors. For this reason, and due to the lack of direct views from other nearby sensitive receptors, the intake's reflective materials and lighting would not likely disturb activities in adjacent areas. Consequently, this is considered a less-than-significant adverse impact.

Goals, Policies, and Programs. In general, however, the compatibility of this alternative with applicable plans and policies would be comparable to that identified above for the ISDP. This is considered a less-than-significant impact.

14.5.5 ISDP Without The Northern Intake, And With An Expanded Existing Intake

This alternative would differ from ISDP in not including the construction of a new intake at the northern extent of Clifton Court Forebay. Instead, the existing Clifton Court Forebay intake would be expanded and West Canal would be widened. The effects of expanding the existing intake and widening West Canal are discussed in the following.

- *Expanded Existing Clifton Court Intake*

Existing Views. Expansion of the existing Clifton Court intake could affect views from sensitive receptors such as nearby recreationists on West Canal. The proposed expansion would replace an existing segment of the Clifton Court Forebay levee adjacent to the existing intake, maintaining the same overall elevation but doubling the horizontal size of the existing structure. The narrowness of the waterway and the height of adjoining levees presently restrict views from West Canal. Consequently, the expanded intake structure is not likely to obscure views beyond current conditions. This is considered a less-than-significant adverse impact.

Local Scenic Character. The expanded Clifton Court intake would replace an existing Clifton Court Forebay levee segment with additional intake facilities. The site and surrounding areas are currently characterized by water management uses, and views affected by the proposed expansion would consist entirely of levee areas. Replacement of the existing levee with additional intake gates is not expected to alter the scenic quality of the area. Consequently, this is considered a less-than-significant adverse impact.

New Sources of Light and Glare. The expanded Clifton Court intake would replace an existing Clifton Court Forebay levee segment with slightly more reflective concrete and steel intake facilities. Security and navigation lights, already present in the area, could increase slightly. As navigation lights are necessary to boater safety, and due to the presence of the existing intake and appurtenant facilities, the additional reflective materials and lighting would not likely disturb activities in adjacent areas. This is considered a less-than-significant adverse impact.

- *Expanded West Canal*

Existing Views. Although construction of a setback levee on the east side of West Canal would alter views from West Canal and surrounding areas towards Coney Island, this action would not restrict existing visual access. Consequently, this is considered a less-than-significant adverse impact.

Local Scenic Character. Construction of a setback levee 300 feet east of West Canal's existing Coney Island levee could alter existing views in the area. However, changes would revolve primarily around the doubled width of West Canal, as the new levee would only replace an existing one. This is considered a less-than-significant adverse impact.

New Sources of Light and Glare. The proposed expansion of West Canal approximately 300 feet into Coney Island would increase the amount of water surface in the area, potentially adding to the glare already present in the area. No additional lighting is expected in association with this action. As the glare would primarily be visible to boaters on West Canal, and would not differ substantially from that already present in the area, this is considered a less-than-significant adverse impact.

Goals, Policies, and Programs. With the exception of the Clifton Court Forebay intake location, this alternative entails the same actions as the ISDP. Although it would be located on a County-designated scenic waterway, expansion of the existing Clifton Court Forebay intake is not expected to conflict with related aesthetics policies, as a similar facility already exists on a portion of the site. For this reason and those outlined above in the ISDP evaluation, this is considered a less-than-significant adverse impact.

14.5.6 No Action (Maintain Existing Conditions)

This alternative would involve the maintenance of conditions in the south Delta as they exist at present. As no additional facilities would be constructed or operated, this alternative would not affect the existing views, scenic quality, light and glare, or existing environmental policies and plans of the project area. These are considered areas of no impact.

14.5.7 No Action (Maintain Conditions As They Would Exist In The Future)

This alternative would involve the maintenance of existing conditions in the south Delta as they will exist in the future. As no additional facilities would be constructed or operated, this alternative would not affect the existing views, scenic quality, light and glare, or existing environmental policies or plans of the project area. This is considered a less-than-significant impact.